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An Amateur's Adventures With Palms

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Prologue

The sun sinks slowly into the west, illuminating the fan leaves of a magnificent 23-foot *Sabal palmetto* with a golden glow and filtering through the graceful fronds of a pair of *Arecastrum romanoffianum* to highlight two *Washingtonia robusta* with their pineapple trunks. Stately *Roystonea elata* on the left and right rise in perfect columns from enlarged bases, their fronds casting a tropical shadow on the ground. If you glance to the right, you see several banana plants and a small *Pandanus utilis*, while a glance to the left reveals orange, yellow, and red *Hibiscus* and a few multicolored crotons. To the left of these, several anthuriums flower and a few *Spathiphyllum* peek from behind a large stone fountain and waterfall, surrounded by pink and white petunias and some gardenias.

Behind two imposing *Sabal palmetto* about 20 feet high, between two grass huts, is one of three *Ptychosperma elegans*. Nearby, a couple of *Phoenix canariensis* proudly rise from the ground, not yet towering giants, but on their way to being so, and a little to the right a specimen of *Latania lontaroides* unfolds a magnificent leaf eight feet wide. Somewhat removed, several birds-of-paradise are about to unfold their unusual orange flowers, and a calypso-pink oleander, which blooms continuously, nestles among more crotons and another pair of bananas. South of these are a few spiny *Rhapidophyllum*

hystrix, a little further a large clump of *Chrysalidocarpus lutescens* spreads its many fronds, and small date and fan palms snuggle among other plantings in the garden. More crotons line a rock wall to the west, while nearby a majestic young coconut palm sends a healthy new frond fifteen feet skyward. The fronds sway gently in the breeze and lean toward the water. In the background Polynesian music fills the air, and as the tiki torches are lit, another day comes to an end to the sound of Aloha Oe.

The above description is one of the following: A) Waikiki Beach, Oahu, Hawaii; B) Papeete, Tahiti; C) Banana Shout, Negril, Jamaica; D) Walt Disney World, Polynesian Village; E) St. Louis, Missouri. If you guessed A, B, C, or D consider yourself normal, but wrong. If you guessed E, it must have been a wild guess, but you are right. Have you ever considered longshots in horseracing? Here's the way it all started.

The Adventure

Once upon a time many years ago, I can recall my mother daydreaming of a someday trip to Hawaii, a trip that she hoped for but in more than fifty years had not been close to making. I remember her crying when beautiful Hawaiian melodies were played on the phonograph and I can vaguely recall her reply "It's just so beautiful" to my question why.

I didn't know then, but I do now, what the lure of the islands can do to some people. As years passed and I looked forward to my first real vacation in 1968 I chose to spend a week in Tahiti and then a week in Hawaii. From my grass hut on the ocean, I watched the sun rise and set and wandered among the foliage and realized why I could never again be unmoved by things tropical.

That was the beginning. A few years later, my parents made the long-awaited trip themselves, and I like to think that the pictures I took on my trip helped make them realize the dream of their lifetime. From 1968 through 1976, I visited Walt Disney World several times, the West Coast several times, Hawaii again in 1973, Jamaica in 1975, and I dreamed a lot. An interest and fascination was becoming an obsession. In 1973 I bought a large 14-room estate on four acres in South St. Louis County from a dear friend who, ironically, had given me my first real job in 1959 and who loaned me money in 1965 to go into business for myself.

Previously, I had spent eleven years in apartments, continually moving to larger quarters to store my accumulated collections of Walt Disney comic material and phonograph records. But I had never had a plant—not a flower, tree, or green thing in my life. Then suddenly I found myself in the near "country" with rolling hills and literally acres of greenery. I began to appreciate what flowers and trees could do for a home.

My beginnings as a plant collector in 1974 were not noteworthy. The *Dra-caena* I watered to death. The marigolds I didn't water or fertilize. The small palm I put in a sunny window and forgot. But eventually I bought my first two six-foot Alexandra palms in 15-gallon containers, dug an 18-inch hole,

and put them in the ground. Humble as they were, they were striking next to a stone fountain I had built until one day early in October when the season's first frost warning sent me speeding home to excavate my two prizes and wheel them inside to safety, extra dirt and all.

Spring 1976 had me thinking tropical again, spurred by my trip to Jamaica, so as a birthday present from me to me I decided to get a new palm or two. Remembering the \$140.00 that each of my six-foot Alexandras had cost, I decided to go to the source, and locating a plantation in West Palm Beach, I flew there to pick out my specimens. After about two hours of wandering in the planting, I had seen what I wanted—everything. During another trip around the premises I rattled off "one of these" and "two of those" and "one of those over there." I watched as the salesman scribbled his notes, and grimaced as he totalled the bill. I gave him a 25% deposit on a bill that reached about \$1500.00, then found out I needed a 42-foot refrigerated tractor-trailer, at a cost nearly equal to my trees, to get them to St. Louis, so that during my flight back I questioned my sanity more than once.

So impressed was I at the variety and beauty of the many palms on this plantation that I failed to think ahead where they were all going to go once the bedazzlement had subsided. Arriving in St. Louis, I scowled at the oaks, and maples, and firs, and evergreens, wondering why this area was not blessed with the likes of the palm family. Before I knew it, the trees I had bought and arranged for transport to a foreign environment were about to arrive.

It was a scorching 95°F in St. Louis the Friday in July that the truck arrived. I had arranged with a local tree firm to have men on hand to help un-



1. Front of house with royal palms and other tropicals in 1977.

load the truck. They were as surprised as my neighbors when green fronds started to emerge from the truck and trees were lowered to the ground by a tractor. Cars stopped in the street and people stared in disbelief at the sight.

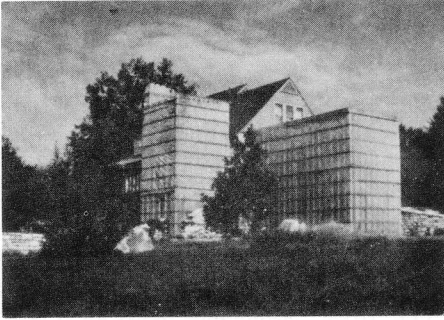
Until this point there had been no preparation. All the trees, balled and burlapped except for *Sabal palmetto*, were unloaded and laid side by side on one area of the lawn. Then I had to decide what went where. For the next three days as I decided, holes were dug, some gravel thrown in the bottom, and a tree placed in the hole and surrounded with a mixture of sand and dirt. (A word of caution at this point. Most of these steps were improper in retrospect and point up the necessity for advance planning for a project of this sort.) The *Sabal* was left until last, due to its size, and therefore was exposed to the hot sun for three days, which affected the root ball no doubt. All the palms were managed by hand except the *Sabal*, which measured about 16 feet, took six of us and the tractor to move, and unfortunately rolled off the tractor bucket so that the root ball hit the pavement. (This is a no-no in palm care.) After it was installed and watered well we drew the support ropes tight and surveyed the situation.

I was now the proud owner in St.

Louis of the following: two 16-foot royal palms, two 16-foot queen palms, one 12-foot *Latania*, one 12-foot *Chrysalidocarpus lutescens*, one 16-foot *Sabal palmetto*, five 6-8-foot *Ptychosperma elegans*, two 9-foot *Washingtonia robusta*, two 3-foot *Phoenix roebelenii*. In addition, I had bought numerous crotons, an orange tree, a large oleander tree, an eight-foot *Parkinsonia*, an eight-foot royal poinciana, and an orchid tree.

Within two weeks the shock was becoming evident. The *Sabal* started losing lower leaves three or four at a time. I kept cutting them off until they were down to three from about 20 when the summer ended. Likewise the *Washingtonia* leaves browned and drooped, and I cut them off. What had been an impressive tree with palmate leaves of green touching the ground in Florida became a chunky pineapple with no leaves except the few at the top just opening. Naturally, being untrained, I thought I was doing something wrong, like underwatering. I compensated by drowning the tree. When the situation failed to improve, I fertilized the tree, then I stopped watering when it still looked bad.

And to make matters worse, at the time I did not even know the correct name for most of the trees, and I also had no reference books. But on the positive side, the two queen palms suffered no shock and continued to look well. The *Latania* also had no shock and kept its four beautiful leaves, each eight feet across. All of the remaining palms except the royals continued growing with no evident shock. The royals experienced browning of lower leaves and of tips on higher leaves, but they did put out new growth, whereas the *Sabal* did not. The poinciana and the *Parkinsonia* lost all foliage but came back, while some crotons lost all leaves,



2. Rear view of house showing both greenhouses. Frank Lloyd Wright would be envious!

some lost none. Notwithstanding all problems, my dream had become as true as I could make it for my first try.

The rest of the summer flew by too quickly. Since I had first started the planting about July 7–10, it left me with fewer than three months enjoyment before winter weather began to set in. Even though plants had some brown leaves and some green leaves, the result was still breathtaking and I savored every moment. I had kidnapped some unwary residents of the land of sunshine and rain and transported them to the Gateway City, with only a minimum of casualties. I had improved the already beautiful landscape that I possessed, adding a bit of the tropics to a stunning view that eliminated all items except trees as far as you could see to the west. I was happy. Of course, my handful of palms, didn't fill up four acres, but it was a start.

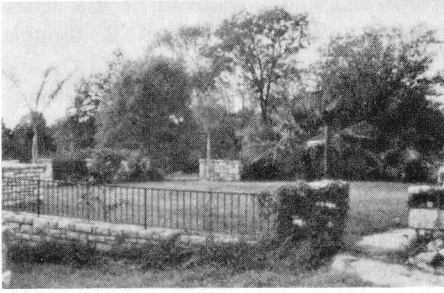
Fall crept up on me very quickly. People started asking silly questions like "What are you going to do with them when it gets cold out?" In early September I inquired of local greenhouses about the availability of storage. Results: nothing. As I looked around for portable greenhouses I saw handy-dandy models up to eight feet, and when I called the local distributor and said I

needed an 18-foot-high greenhouse he failed to impress me with his suggestions.

Build a greenhouse—I had no other choice. So I ordered lumber and built a poor man's Howard Johnson Motor Lodge motel. It took the rest of September to erect and finish a structure 18 feet high by 12 feet wide, by 24 feet long, attached to the house on one end with the opposite end left open until all items were brought inside and then closed in. The structure was all two-by-four construction with the exception of the roof, which was two-by-six. It was totally open on the inside with no cross beams or supports. This framework was covered with a 100-foot by 20-foot roll of clear 6 mil poly sheeting, which is only good for one year when exposed to the elements. This was stapled to the wood inside and out so as to form a 3½-inch air pocket between the two-by-fours. This system proved to be very good in maintaining heat. On top of the slightly sloping roof, 12-foot corrugated fiberglass sheets were placed, caulked, and trimmed with flashing. One-by-two redwood strips were nailed horizontally at 24-inch intervals from top to bottom to stabilize plastic on the outside and dress up the structure architecturally. Result: no prize for art, but it functioned and the cost, excluding a new furnace, was about \$500.00.

A friend installed a gas furnace almost as big as the one in my house for about \$700.00. A lawn sprinkler was installed near the top so it would spray water over the inside, resulting in leaf damage later, as I would find out, but at the time seeming a good idea. Lights were installed and we were ready for the trees. If they could think, I'll bet the palms were wondering, "What am I doing here?"

But they would be saved. The tree company returned and dug up each



3. Rear terrace with *Washingtonia robusta* and *Arecastrum*.

palm, reburlapped the ball, and brought it to the greenhouse. There each was cushioned on a six-to-eight-inch layer of sand, soil, and peat moss. After all were in, more mixture was added to cover all balls up to trunk base. In essence the trees were replanted in the greenhouse. Work was completed when the *Sabal*, saved until last, was placed in the greenhouse with a crane truck. Had I known then it was dead, I would have saved another backbreaking job, but I thought it was still alive at the time. Job completed. Greenhouse closed. First frost warning that night October 4, 1976. Close call, but we made it.

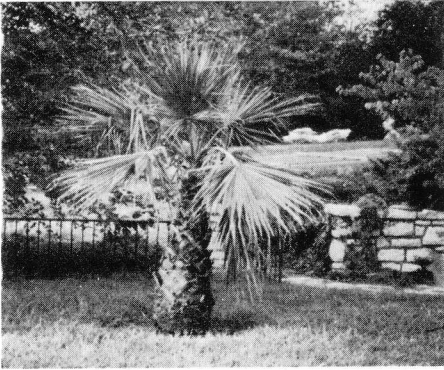
The side of the greenhouse attached to the house had openings on the basement level through sliding glass doors and on the next level up from a dining room porch (also enclosed with plastic and wood). Therefore, from the basement I could walk out into my own illuminated tropical jungle, and from the next level I could look over the tops of the trees. Activating the lawn sprinkler overhead produced a raining effect from below and was nice except that the water was cold (another no-no) and the fact that to keep humidity in the greenhouse (about 50%) it was necessary to make it rain almost daily, which caused spotting and yellowing on numerous leaves after several months. Although none

died from overwatering, the plants would have looked better had I done differently.

About this time I asked a representative of the Missouri Botanical Garden to visit me for helpful hints. The most important suggestion to come from the visit was that of putting palms in containers to avoid constant shock and root damage when moving palms in and out of the greenhouse.

As the winter progressed I kept a close watch on my wards, but all was well and soon I stopped worrying. Then I found out about *PRINCIPES*, subscribed, and bought all back issues. While reading the 1976 issues, I marvelled at the immense effort put into the *Sabal palmetto* series by Dr. Kyle E. Brown of Florida, and though I understood little of it then, I did call Dr. Brown, sent him some photos of my trees, and also questioned him on my *Sabal* problems. Applying his test on the center bud, I tugged and it came out, still damp. Thereby I learned that my *Sabal* had died. I was sad at having uprooted this noble tree only to kill it with errors of care and treatment so far from home. But it was the only casualty, and thanks to the immense help Dr. Brown gave me, I felt I could only go up from here. In other words I had things in the palm of my hand.

Even when temperatures dropped to -13°F it was warm and cheery inside the greenhouse. In fact I had no trouble getting 70° even though it stayed 55° on average. We did have a solid month from late December until late January when the temperature did not rise above freezing here. The pink oleander brightened the greenhouse with color almost all winter, though the royal poinciana left outside died. The orange tree ripened oranges, which I ate, and from the seeds subsequently grew new orange trees. The *Parkinsonia* produced its



4. *Washingtonia robusta* planted in the ground for the winter.

pretty yellow flowers and all the palms were still green. The master has provided. All is well and all has been taken care of. Nothing can go wrong . . . go wrong . . . go wrong . . . go wrong.

It was a March morning early, just barely light, when I awoke to the sound of a strong breeze. I got up and walked to the living room as it started to rain, but by the time I crossed the sliding glass doors the rain became torrents. I walked to the dining room porch and went out. At that moment a gust of wind, and the 16-foot-long, 8-foot-high section enclosing the porch (*not* connected to the main greenhouse) blew in. I caught it, or rather it caught me, and I stood there in my underwear, soaking wet, pushing against 50-mile-per-hour winds for what seemed an eternity, but was only a few minutes. I waited until the first break in the wind, ran downstairs, got my hammer and nails, and replaced the wall as well as possible. I braced it with a couple of boards and it seemed okay. That was only the beginning, for the greenhouse started to sway, and I ended up by chaining it to a column on the porch. I went to work that day extremely worried, but no further problems had occurred by evening. I was in for several more days of high

winds, but had time to make the necessary repairs. For a little while though, I had visions of The Wizard of Oz and saw my giant box kite sailing through the air with me riding a royal palm in my night clothes.

Throughout the winter I could open my sliding basement doors and stroll through the foliage brushing back the fronds with my make-believe machete and looking up in awe at these magnificent trees. By now spring had nearly arrived, and even though we had no freezing temperatures that I can recall after the first part of March, I first opened a little side section for outside air in April. I remembered too late to allow for pollination of my orange tree, so I had no oranges in 1977. The worst was over and all the trees save my *Sabal* were alive and, excuse the term, "kicking," despite the fact that I fertilized them in the early spring, another no-no for palms.

It was time now to look for containers. Locally no luck at all. Through one nursery however, a lead developed and I located 45-, 65-, and 95-gallon containers in black fiberglass from a place called Lou Cans in Hialeah, Florida. I ordered a bunch and they arrived a couple of weeks later. I was getting ready for my best year ever. I could envision all my lovely "children" occupying their respective spots happy and healthy again.

Shortly after May 1, 1977, the big day arrived. I climbed up the ladder and dismantled the far wall, and with some help lowered it and let the sunshine in. Since my greenhouse was clear plastic all around, the plants did get optimum light all winter, were in reasonably good condition, and needed little adjustment when put back outside. The dead *sabal*'s midsection became a permanent post for my little-grass-shack mailbox. At least I can maintain its memory in an attrac-



5. Moving plants into the greenhouse, October 1977.

tive setting for a long time. All in all, the project had not been a total disaster, considering my background.

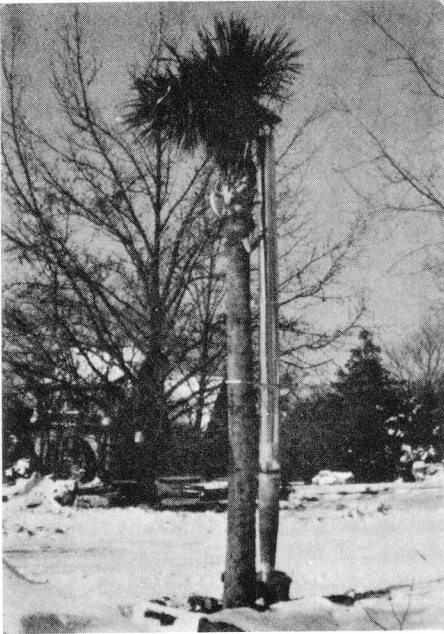
Project 1977 was almost anticlimactic. I decided to plant the two *Washingtonia* permanently in the ground because of their size and the enormous shock they had experienced, using a system I had developed in my mind and on paper to build a sturdy, efficient, yet easily removable protection for them during the winter.

The first step was to provide for bottom heat to keep the roots from freezing. I purchased six heavy-duty underground soil-heating cables made by General Electric and installed them in a circular pattern slightly sloping upwards from a depth of about 16 inches deep to four inches from the surface, whereupon the plug exited to be inserted in a thermostat, in turn plugged into an outdoor electric box installed next to each tree.

Holes were enlarged to 40 inches wide and deep with the lower half filled with good sandy soil mixed with cow manure, peat moss, and an application of Upstart poured over the ball as it was put carefully into the hole. Then the good sandy soil mixture was added and the cable unrolled as we filled the hole, keeping about four to six inches between layers of cable so it would not touch itself accidentally. When this chore was completed, the hole was top-dressed with some white sand mixed with soil to give a "Florida" sand look to the area.

Palms to be put in containers were treated differently. Holes were also enlarged and containers placed in the holes resting on a sling. This was made of $\frac{5}{16}$ -inch chain running through three two-by-fours with holes cut in the center and looped to return through another hole on the other end of the two-by-four, then rejoined at the surface with the original end. The two-by-fours serve merely to keep the chain in place under the container during moving. The two closed and loops of chain were brought to about a foot higher than the surface on both sides and tucked into the top soil layer after the tree and container were in the ground with the soil and mulch covering the top rim of the container so as to look "planted." The chains were therefore not noticeable yet were easy to scoop out later. When plants are to be brought in, a forklift, tractor, or several persons can raise the pot to the surface, attached by a car chain or iron bar between the two loops, for removal to the greenhouse. The system was tested with one of the royals and worked well.

Arecastrum and *Latania* were put in 65-gallon containers, *Phoenix roebelenii* and *Ptychosperma elegans* in 45-gallon pots, and *Roystonea* and *Chrysalidocarpus lutescens* in 95-gallon containers, all in holes enlarged to suit slings and con-

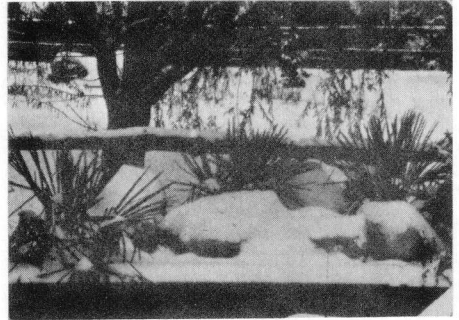


6. *Sabal palmetto* with smudge pot. I did my best, but mother nature wouldn't let me fool her.

tainers. Most recovered nicely and grew well outdoors.

I had had bad luck with one *Roystonea*, which was put aside to recuperate from lack of water occasioned by deflection of "rain" in the greenhouse by the large leaves of the *Latania*, and thus needed another royal to make a pair by the front porch. I therefore decided to order another truckload of palms from Jim Menge of Jacksonville, who had been very helpful over a three-month period of answering my endless questions, correcting my mistakes, and offering constructive criticism in encouraging my quest for Paradise in St. Louis.

After much thought, soul-searching, and consultation, I chose the following for my 1977 order. (I don't know why I said consultation, since I always get what I want first and worry about it later.) The large items were one 16-foot

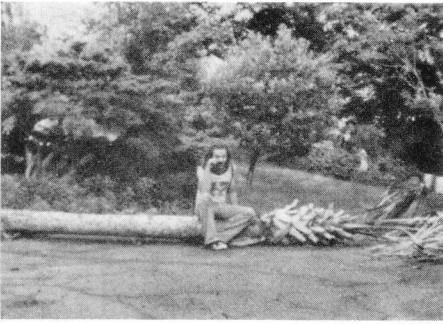


7. *Rhipidophyllum hystrix* in early February, still undamaged.

royal, two 18–24-foot *Sabal palmetto*, one 12-foot Malayan coconut (I knew I'd get one sooner or later), two 8-foot *Phoenix canariensis*, and one 12–14-foot fishtail (*Caryota mitis*). I also got 20–30 smaller items to fill the truck, including several *Butia capitata*, *Rhipidophyllum hystrix*, small *Phoenix canariensis*, *Livistona chinensis*, and several other species, most noteworthy being a splendid *Licuala grandis* which, though still in the greenhouse, is doing very well. In addition I ordered several more crotons, bird-of-paradise, bananas, oleanders, hibiscus, a mango, several large cycads, and a nice six-foot *Trachycarpus fortunei*.

I also arranged for help when the truck arrived, including friends and relatives and men from another nursery—and just as well, for in the shipment from Jim was a 23-foot clump of seven trunks of *Caryota mitis* sent inadvertently in place of the smaller one ordered. Handling that was a real problem: it ultimately ended up in a little cove just inside the gate to the rear terrace between a stone wall and the basement porch where I can build a shelter around it and heat it from the dining room porch.

I wasn't going to be caught being a dummy again so I had two large 60 × 60 × 48-inch holes prepared for the two



8. A sad moment for a palm lover.

Sabal palmetto which, with the large *Phoenix canariensis*, were to be planted permanently like the *Washingtonia*. I had read in *Palms of the World* about the importance of a well prepared hole, so I chose a spot for each directly across the drive from my front porch on each side of a railroad-tie retaining-wall enclosure, which had actually been chosen, planned, and dug in late April, anticipating the arrival of these trees. In late May, holes were dug for all others to be put in the ground except the fishtail and the coconut, which I had chosen to pot and leave above ground. Nineteen holes, each averaging nine to 25 cubic feet, all dug by yours truly by hand with a little help on three of them. I swear I heard Chinese voices on more than one occasion as I peered up from the bottom of one of the larger holes!

When the plants arrived, the two sabals were rolled into their holes and then erected. I say erected, because you don't plant a tree that size, you erect it. As a tractor pushed the trunk up, we secured it three ways with ropes and then installed the underground cables. The holes were filled with good sandy soil with cow manure, sod, wood shavings, grass clippings, topsoil, sand, and peat moss. There was no noticeable shock, and after two and a half months one of the two produced two flower

stalks eventually reaching almost four feet and covered with literally thousands of tiny white flowers. Just imagine, all you non-Florida residents, the thrill of climbing a ladder to the top of your own 19-foot *Sabal palmetto* to watch the insects pollinate flowers in your front yard in St. Louis, Missouri. Words cannot describe the thrill.

The three *Rhapidophyllum hystrix* and four *Serenoa repens* have been permanently installed in good soil but where they can be mulched well, covered when it gets very cold, but not heated. It will be interesting to see how these do in the climate of central Missouri. Other palms were planted in containers for removal to the greenhouse in the winter. An automatic lawn sprinkling system, which I installed in 1976, is ideal for providing regular, steady, and thorough watering essential to good palm growth and I also installed overhead spray nozzles over my front porch to spray the foliage of my royals daily along with the bananas and other water-loving plants in the area. I even have my own rainbow when the mist is on.

The six trees planted permanently are to be sheltered in the winter as follows. All have heating cables in the ground around the root ball, thermostatically controlled: 125-amp service panel was run to a central point, then separate 120- and 240-volt lines were run to a weather-proof box near the base of each tree. All wiring was enclosed in plastic rigid pipe and buried.

A welding company made up 24 plates of steel, which consist of a 5-inch square $\frac{1}{4}$ -inch plate with two 2-inch holes and two 24-inch stainless steel pipes welded below with a smooth clear top. One inch separates the two holes. A post-hole digger will dig a 6-inch-diameter hole 24 inches deep, into which these two 24-inch poles will be placed and the balance filled in with concrete or dirt.



9. The author poses with first large palm ever grown successfully outdoors planted in the ground in St. Louis, Missouri, after the coldest winter on record. Photograph taken on the day when the palm was uncovered in May, 1978.

The top plate will then be flush with the ground. After these are secured, one on each corner of a 10-foot square around each tree, a slightly smaller lightweight metal pole will be slipped into the inner of the two holes on each plate, and on each of the four corners likewise. The length of the pole will be slightly higher than the top of the tree and 24 inches longer than that to slip into the open shaft below the plate on the ground. This will stabilize the pole, yet allow for easy lifting out and replacing on short notice and also will not be noticeable during the spring, summer, and fall months, since it can be removed. The 10-foot-high poles will be simple for four of the six trees. The 20-25-foot poles will be more difficult but not impossible to set. They will need slightly more crossbracing. After the poles are up and cut to the right height, a top frame of $\frac{1}{2}$ -inch reinforcing rod will be made and each end heated and bent down a foot to slip in the open top of each pole. This should be sufficient to keep snow from causing a sag if they crisscross. When this is completed, we go to the next step.

The Griffolyn Company of Texas makes custom plastic bags for use in

many situations. They have a strong, clear material that is fiber-reinforced every inch and will not tear past the next inch if a puncture develops. They make these bags in any size. Whoever heard of a plastic bag $10 \times 10 \times 25$ feet high? They did. One of these bags will slip over the before-mentioned framework. The bottom is open. All other sides are sealed. When this is done, the same process is repeated over; that is, another pole, three inches longer than the previous one is placed in the outer hole on the metal plate, another top frame and another plastic bag three inches higher and six inches wider fits over this second frame.

The purpose is to provide a bag over a bag with a 3-inch air pocket between the two. What this does is neutralize the hot air from inside and the cold air from the outside, resulting in a stable temperature that requires much less heat since it will rise inside the structure and has nowhere to go. Most covers over palms in cold climates fail because of the no-insulation factor. It's more work, but I've a large investment in money and time and I do not intend to lose my trees. This principle worked in my two-by-four greenhouse. I had a $3\frac{1}{2}$ -inch space between two plastic sheets and even though we had temperature to -15°F , my greenhouse stayed warm all winter. The bags will be a little long to allow for some growth and to have a certain amount of slack to set bricks, stones or such on around the bottom, so it can be raised on nice days easily. With a 10×10 foot square area for the trees, there is ample room for a thermostatically controlled heater, one or two fans for circulation, and a large tub of wet gravel or water for humidity. High winds should not be a problem during the three months maximum necessary to protect the trees. Mid-November to mid-February should be the approximate

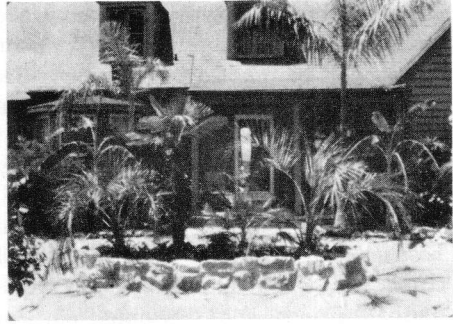
shelter period as the species I've chosen for this experiment are hardy and can take occasional freezes during the remainder of the winter-spring season. By high wind season in March-April-May the trees will be uncovered and on their own for another healthy year.

So as this chapter comes to a close and I recline in my swing under my royal palms, savoring the view, the music, the trees, the atmosphere, imagining myself at a bungalow in some far distant tropical land, I suddenly awaken and realize I've got three weeks before I've got to pack up my whole yard and move it inside. People say, "why don't you just move to Florida?" to which I reply, "It just wouldn't be the same. Down there everyone can live like this. In St. Louis, it's something special that only I can do." But before anyone thinks they can follow my example, I hastily add that between June 1976 and September 1977 this project has cost me many thousands of dollars. All of this because my mother used to cry when she heard the beautiful Hawaiian music. Aloha from St. Louis, Missouri, the new palm capital of the midwest.

Epilogue

As I sit here enjoying the beauty that summer once again bestows on palms and other tropical plants on a 90-degree day in July 1978, it's hard to reflect back to the winter of 1977-78 but I'll try.

First of all, some notes on our winter. This was the *coldest* winter on record in St. Louis (Zone 6) and one of the coldest springs on record. Over 64 inches of snow fell during the winter and there were 71 consecutive days with snow and/or ice on the ground from January 8 through March 20. Average temperatures were 27.5°F maximum, 11.6°F minimum, 19.6°F average for January, 28.1° maximum, 14.1° mini-



10. A new planting to be heated and covered for the winter of 1978-79.

um, 21.1° average for February, and 47° maximum, 28.8° minimum, 37.9° average for March. From January 9 through March 8 we had only nine days when the *high* temperatures rose above freezing, and five of those were a high of 33° or 34°F. The other highs were one each of 35°, 36°, 39°, and 52°F. On February 6, we had a low of -8°F, a high of 14°, and on January 26, a low of -3°, a high of 14°. Wind chill reached -50°F and there were occasional winds up to 50 mph. According to nurserymen locally, some species were killed in St. Louis that had not been killed in 40 years, and our February was the coldest since 1838.

During this winter, four trees were covered with my plastic bag-framework design previously described and all four survived. Two of the four were *Phoenix canariensis* with 18 inches of trunk and a maximum height of seven feet. In one, all fronds and the center spear turned brown shortly after January 4, 1978. Major surgery was performed with all fronds removed and two inches cut into the trunk to find green and the tree cut back to about 16 inches above ground. In the other, all fronds and part of the center spear were killed after low temperatures around January 20. All dead fronds were removed. Dates of damage

are approximate because I couldn't see the trees clearly unless I crawled under the edge of the bag for a periodic check when conditions permitted (snow was often frozen solid around the bag). Both trees are recovering, are a healthy green, and have a height of five feet.

The other two were *Washingtonia robusta*, both with about five feet of trunk and nine feet high overall. One had all fronds and the outer part of the center spear killed about the same time as the *Phoenix canariensis* (January 4). The heater was turned up and full recovery is underway. It now has eleven opened leaves, three of which were damaged in January and were part of the center spear. The other suffered no damage and continued to grow throughout the winter. Not one leaf was killed and it now has 22 fully opened leaves plus the new spear. Naturally I'm proudest of this one.

In the course of the winter, several problems developed that had some bearing on the results. The four upper corners of the plastic bags were worn through by the wind whipping them against the metal reinforcing rods that provided the roof framework. This allowed some loss of heat but can be corrected by inserting a rubber cushion between the two next winter.

Rain and snow also weighed down the plastic roof, but the plastic did not break or tear, and the problem was alleviated by poking several holes in the lowest parts of the roof with a knife so that water and snow melted from the heat inside could drain through the holes and water the tree in the process.

During some warm periods in December before extreme cold weather, temperatures rose to 90° and 100°F inside the bags. I became worried and lowered the heater settings. Thus, when cold weather hit shortly after the first of the year, heater settings were not

high enough in three of the four bags to protect the trees properly. The heater was turned up and even though the coldest weather had yet to come, trees that had lost their green fronds began immediate recovery and continued to grow through the balance of the winter with no further damage. As it turned out, the high temperatures inside the bags during the day when the sun was out were more beneficial than detrimental to the species that were being grown in them.

The bags took quite a beating from the heavy winds, but they held up and for much longer than planned. I kept them on from about November 15 until the second week of May because the trees were growing so well under them. Six months in a plastic bag! At one point, the trees were fully enclosed for a period of over 30 days with no fresh air other than leaks, but the ten-foot-square bag allowed for ample air circulation.

Of other palms, the three needle palms (*Rhapidophyllum hystrix*) were planted in open ground with no protection of any kind except three inches of regular mulch around the bases. They were 30-inch-high plants fresh from southern Florida and probably had never before been exposed to freezing temperatures. They suffered no damage through the first week of February, however. Then some leaf damage was evident and several leaves were heavily damaged by the end of the winter, while others were not. Wind damage during the extreme and extended cold (the ground was frozen practically solid for two months straight) may have contributed to the damage. All three plants did survive without damage to the unopened spears and to a suckering plant on one, and all produced flower stalks in May. Four unprotected *Serenoa repens* and a

Caryota mitis covered with a temporary greenhouse failed to survive, however.

Two *Sabal palmetto* 22 to 24 feet high braved the winter uncovered with fronds tied up and wrapped in burlap with a 20-foot-high smudge pot on its side pumping heat all winter whenever temperatures were below 15°F. By the time I had covered the four small *Phoenix* and *Washingtonia* it was mid-November and I had run out of "steam." Attempts to protect the two *Sabal* with covers were unsuccessful despite the expenditures of over \$600 for scaffolding and \$250 for heating oil. One caught fire from the heater and in seven degrees I was on a ladder with buckets of water to put out the burning burlap, freezing to the ladder with my wet hands. Thank goodness it was late and my neighbors couldn't see me! Despite all this, they retained green fronds for some time and would have made it if I had covered them.

They were cut down in May after the center spear pulled out. I have two new ones, though, and this time I *will* succeed.

So, as I look to the winter of 1978-79, I feel confident I will lose nothing and have put out two new planted areas where trees are in the ground with heating cables and will be covered. These are all reasonably hardy palms and include two 16-foot *Washingtonia robusta*, two 18-foot *Sabal palmetto*, six 3-foot *Sabal minor* in one planter, two 5-foot *Butia capitata*, one *Chamaerops humilis*, and a 6-foot *Trachycarpus fortunei*.

The author is 35 years old, a lifetime resident of St. Louis, single, and maybe just a bit crazy, but if anyone wishes more detailed information or assistance, write to the address given or telephone 314-849-0353 or 314-421-4661.

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